

Fire and the Forest

What images come to mind when you think of fire in the forest? Is fire always a bad thing? Is it always a good thing? How we feel about fire often depends on how safe we feel around it. Many people enjoy the warmth and comfort of a fire when camping, but an unexpected plume of smoke rising from trees on the horizon would make most people a bit nervous.



Park staff monitoring fire effects two years after a fire on the Kabetogama Peninsula.

Although fire must certainly be respected, it is wrongly portrayed as a destructive plague that menaces our forests year by year. In the right place and under the right conditions a fire in the forest can be a cleansing and rejuvenating force that supports forest health. How can fire keep a forest healthy? Believe it or not, almost all plant communities at Voyageurs depend on fire to exist, and without it several native plant communities will slowly disappear from the landscape.

Fire consumes dead material and transfers nutrients to the soil. Fire creates openings by killing some trees and shrubs and allowing sunlight to reach the forest floor. Without forest openings it is difficult for new plants to grow. Some plants depend on fire to reproduce. Jack pine is highly dependent on fire. This species requires high temperatures to open its cones and release the seeds inside. Jack pine seeds will only grow and prosper under open forest conditions. Fire is the natural means for meeting these conditions.

Red and white pine forests also require fire to prepare the seedbed and create openings in the forest. However unlike jack pine, red and white pines have thick insulating bark and high branches allowing them to survive smaller fires and provide seed for the next generation.

Managing Fire

Imagine a city with millions of adults but no seniors and not a single child. Would it be natural? Would it be healthy? Now think of a forest, with no large mature trees reaching to the sky, and no seedlings or young trees in the under-story to sustain the forests of the future. Would this be healthy?

What does this have to do with fire? Forests have developed over time in the presence of natural disturbances like fire. Fires occasionally burned through some forest stands, but new forests grew into those openings. This created a landscape with mature trees, some dead trees, but also space for new trees. However, for decades wildfires have been deliberately kept out of most landscapes because of the need to protect homes and businesses, but also due to an overall fear and lack of understanding of fire.

This has resulted in many unintended results, including the decline of fire-dependent species in the places where fire is needed to release seeds and create openings in the forest canopy. Voyageurs National Park, like many public land management agencies, is actively working to return fire to the forest in ways that will improve forest health while protecting human safety and property.

Prescribed fire is used at Voyageurs to maintain and regenerate pine stands. This involves burning off the pine litter and brush, and creating openings in the forest to prepare it for the next generation of trees.

The park may begin restoring fire to some of the pine studded islands this summer. Naturally-ignited fires are allowed to burn on the Kabetogama Peninsula if specific weather, location, and other constraints are met. During the summer of 2004, a lightning-ignited fire near Shoepack Lake met these constraints and burned for one month covering approximately 1,000 acres. The area is now regenerating to aspen, birch and pine. Although the look of the forest immediately after a fire may suggest that only blackened trees and bare soil have been created, a return visit to this same site will soon reveal vigorous re-growth as new seedlings and other plants sprout and flourish in the sun. Healthy forest landscapes are diverse, with many types of trees at various life stages. This is the foundation for the health and diversity of the animals that live here, and the natural beauty that makes the park a great place for people to visit.



New growth is visible just weeks after a fire.

PARK RESEARCH & MONITORING

Lake Levels Study

Water level management is a critical resource management issue at Voyageurs National Park. Rainy Lake and the Namakan Reservoir are natural water bodies. However, outflow and water levels are controlled by privately owned and operated hydroelectric dams that were built in the early 1900s. The dams are located at the outlet of Rainy Lake and on Namakan Lake’s two principal outlets. The International Joint Commission (IJC) is an independent team of commissioners that was established in 1909 to help prevent and resolve disputes relating to the use and quality of boundary waters between the United States and Canada. The IJC establishes rules for managing lake levels on waters shared by these two countries, including Rainy Lake and the Namakan Reservoir which are partly within the boundaries of Voyageurs National Park. New rules for managing water levels were adopted in 2000 since negative impacts related to unnatural lake level management had been identified by scientists during the 1980’s and 1990’s. The new rules are subject to review in 2015. Research is being conducted to determine if the new water level management approach is resulting in improved environmental conditions. The National Park Service and U.S. Geological Survey provided funds to support research on several park resources that are affected by lake levels management, including:

- Aquatic Plant Communities (number and type of species)
- Invasive Species (rate of spread of exotic cattails & reed canary grass)
- Wild Rice (abundance and patch size)



Photo credit Ray Klass



Photo credit Lee Grim

- Benthic Invertebrates**
  - Abundance and species diversity
- Fish**
  - Survival, growth, reproductive success
  - Species studied include: walleye, northern pike, whitefish, lake sturgeon and other game fish.
- Aquatic Birds**
  - Research studied the nesting success of common loons.
  - Study evaluated if lake levels resulted in nest flooding or stranding.
- Small mammals**
  - Beaver and muskrat studies evaluated how water levels affect the number of muskrat houses and beaver lodges, muskrat house abandonment rates, and winter behavior of beaver.

The information provided by this research will be presented to the IJC to help inform decisions about how the hydroelectric dams that regulate park waters will be managed in the future. To learn more about specific park research projects, stop by a park visitor center or visit our website at [www.nps.gov/voya](http://www.nps.gov/voya).

YOU CAN HELP!

Protect Water Quality

Water is the defining feature of Voyageurs National Park. The interconnected lakes that carried the birchbark canoes of the Ojibwe Indians and voyageurs continue to attract thousands of people each year. We need your help to protect the quality of these waters: Keep it clean. Please take care to prevent garbage from ending up in the lakes. Use toilet facilities when they are provided. Otherwise, dig a hole 8 inches deep at least 100 feet from water to dispose of human waste. Soap does not belong in the lake, even biodegradable soap. When bathing or washing dishes please lather up and rinse off at least 100 feet from the shoreline.

Protect Wildlife

Don’t allow wildlife to obtain your food or garbage. Store food, trash, toothpaste, and other scented items properly to help keep yourself safe and wild animals healthy. Use non-toxic fishing tackle. One lead sinker is all it takes to poison and kill a loon. Non-toxic (lead-free) fishing tackle is available for sale at local businesses and in park visitor centers. Collect and properly dispose of fishing line. Fishing line left out in the park has resulted in the painful injury and death of animals that were unfortunate enough to get tangled up. Enjoy observing wildlife from a distance. Bald eagles and loons may abandon nests and young when people are too close, or if people stay for too long.

Protect Forest Health

Collect dead & downed wood for your campfire. Do not cut down or break branches from standing trees. Do not bring firewood from outside of the immediate area. Emerald ash borer, gypsy moths and other forest pests may be hiding in wood harvested from infested areas. Purchase firewood from the area where you intend to use it. Take the time to make sure your campfire is out cold before leaving your picnic, shore-lunch or campsite. If the ashes are warm to the touch they could still start a fire. Drown all campfires and stir the ashes to make sure no hot coals or embers remain.

Protect Natural Diversity

New regulations are being considered and may be in effect this summer due to the recent invasion of park waters by spiny waterflea. Stop by a park visitor center for up-to-date information on efforts to stop the spread of invasive species. Help prevent aquatic exotics from spreading to uninfested waters: Help stop the spread of noxious weeds Check tires, shoes, socks, jackets, and other items for hitchhiking plants or seeds before heading down the trail, or moving from one location to another. Get the Facts – learn to recognize invasive species and familiarize yourself with their effects on native plants and wildlife. Take Action – remove invasive species from your property and take park in local control efforts.